

Change Management Critical Success Factors



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Increasingly more oil industry organizations are becoming aware that some form of Change Management should be used as an integral part of implementing their newest digital oilfield of the future (DOFF) technology. Companies are learning that a DOFF “technology insertion” is not an easy maneuver. It requires communication, work processes re-design and modified role definitions as part of an implementation.

In addition to Change Management, there is much more to this oilfield technology story. Other critical success factors for implementation include leadership and organizational forces or other conditions for a successful insertion to occur. The following case study illustrates these success factors as each are proactively put in place.

Company X

Top management at Company X (name changed to protect the innocent), focused on production and ROI. All agree that innovation was needed in their business for two key reasons; it could both compensate for the severe shortage of trained and experienced personnel and continue the company’s goal of becoming more effective and efficient. Not unexpectedly, gaining agreement on the concept was easy, but details for actually implementing the technology were much more complex.

Fortunately, the top manager responsible for implementation of the new DOFF technology recognized the need to get everybody on the same page. Here is how the five Critical Success Factors (see Figure 1) played out to the company’s benefit.

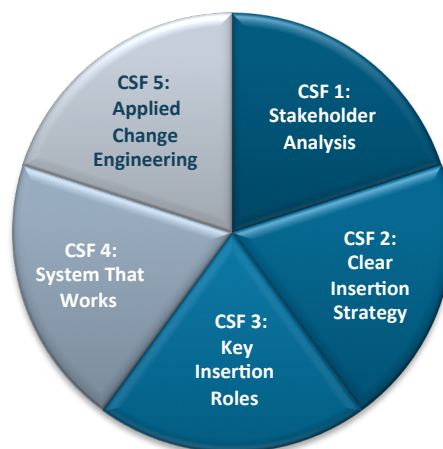


Figure 1: Change Management Critical Success Factors

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Critical Success Factor One: Stakeholder Alignment

Stakeholders' interests, expectations and incentives must be aligned around successful technology insertion:

- Top management within the business units must be accountable for both economic returns and innovations that support company strategy.
- Asset management must be accountable for both production and integration of the DOFF technology and their assets; and
- The R&D manager who spearheads the entire effort must be accountable for both a technical solution that works and a safe and secure implementation.

R&D, working closely with asset managers, had been aggressively developing and testing new technology that could be used downhole for better well management. Once the first new innovation was ready, it was reviewed by top management and given the go-ahead. This innovation, the DOFF software, was considered so good that top management approved installation of the software at each of the company's major asset locations. Unfortunately, "installation" did not mean utilization. Management's comment of "Let's do it" was first interpreted to mean that all assets could begin using the software immediately; however, even though software had been loaded, it was not being used after nearly six months.

Subsequently, the R&D manager personally visited several asset managers, only to learn two positives and a big negative. These managers knew about the software and its potential benefits and understood that the software was loaded onto their IT systems platform, but they had no clear plan to implement since their assumption was that if the software proved its value to the engineers, it would be utilized. The asset managers' assumption was that if it was not being utilized, it had little or no value. Clearly, they dropped the ball in ensuring uptake of this valuable technology in their own business unit.

Critical Success Factor Two: Clear Insertion Strategy

Top management must clearly identify the technology insertion strategy to be used.

- Deployment – All units will implement and use by a given date (a top-down approach), or
- Adoption- Assets can choose if and when they implement the technology (a bottom-up approach).

Not lacking persistence, the R&D manager continued to "sell" the software to several asset managers but with little success. Finally an asset manager from an asset that had traditionally been an early adopter of technology relented and agreed to implement the software in a different way.

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Upon agreement, the R&D manager formed an implementation team led by one of his key technical managers, supplemented by two Change Management team members. This team began meeting with production engineers from the asset team.

The asset manager was hoping to achieve three key goals with this project:

- Use the software to provide accurate well flowrate estimates by well;
- Streamline the well modeling using real-time data, which had been very time-consuming and
- Make better use of limited production engineering resources, particularly in fluid surveillance.

To maintain project focus, the asset team re-stated their objectives several times, that it was for commercial reasons to be achieved by seeking improved subsurface team staff efficiency and delivering a higher quality surveillance program on expensive subsea wells. As a result of these meetings, the asset manager named one of his managers as the project manager who job was to get the software into use.

Critical Success Factor Three: Key Roles Established

Business management and R&D must establish key organizational roles related to the technology being inserted:

- From R&D, a technology implementation manager must be responsible for a safe and secure implementation; and
- From the asset team, an engineer must be responsible for integrating new DOFF technology into the day-to-day operations of the asset.

Problems that the asset team faced were numerous. For example, determining well fluid rates is difficult because some wells have commingled multi-zone production and all wells must be tested by difference. Prior to the project, the asset had four different production allocation reporting processes feeding other systems. That old process was very labor-intensive and required three days of manual work in addition to providing dubious results.

However, the allocation proves could not have been improved without first addressing the more fundamental issues of calibrating the software through the elimination of spurious alerts so that software results could be trusted. Early attempts to use the software were thwarted by system errors occurring frequently during the “get acquainted” phase of the implementation project. Therefore, several weeks of problem solving were devoted to eliminating the bugs, a period when

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many operational personnel became cynical about the system's value, which leads us to the next requirement.

Critical Success Factor Four: A System that Works

The company must provide a customer-driven DOFF technology innovation that:

- Supports business needs of the asset;
- Is certified as “fit for service,” and
- Has been proven to work by operational tests under real-world conditions.

The formal asset implementation team, which had been formed by the asset manager, consisted of three of his engineers and the R&D representatives described earlier. While software changes were being made to bullet-proof the DOFF software, the implementation team began planning the details of the implementation.

The foundation for the team's planning involved the interaction of the disciplines of Project Management as well as a detailed implementation template provided by Change Management. The R&D team's advanced preparation allowed the implementation team to have a well-thought-out approach based on the fundamental disciplines. This detailed template had been commissioned by the R&D manager in advance of the first implementation as a part of the innovation services his organization provided.

Critical Success Factor Five: Change Engineering

Rigorous and disciplines use of Change Management and engineering principles and formulas is required:

- Business engineering disciplines must be used, including program management, project management and change engineering;
- Change principles or formulas that match the implementation approach must be used – whether the approach may be deployment or adoption; and
- Asset work processes, performance expectations and the technology to be implemented must all be aligned.

The formal asset implementation team focused on the hard and detailed work of mapping the daily work processes of the asset's engineers, modifying those processes to match with DOFF software, and developed detailed documentation and training on how work processes would need to be performed with new software being implemented.

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Implementation was accomplished over a few months, working around the engineers' normal schedules. The execution phase was kicked off by the asset manager, who emphasized that he had made the decision to go with the DOFF software and that, once in place, he expected the tool would be used to meet the team's production and surveillance goals.

Business Benefits

Following successful implementation and usage, the implementation team concluded that the new system was saving the asset several million dollars per year. In addition to the financial benefits of the project, the asset team reported several other benefits related to the project's goals:

- Using the DOFF software to provide accurate flowrates and phases by well – The asset team reported that they are very satisfied that DOFF software is providing accurate well flowrates based on temperature and pressure readings. This performance demonstrated to them the value of having the DOFF data as a source for determining the performance of their wells.
- Streamlined the allocation process, which was very time-consuming – Use of real-time well fluid rates has reduced the time needed for engineers to develop well models to manage their wells better.
- Made better use of limited engineering resources, particularly in fluid surveillance – Automation of the data from production allocation to several other engineering tools and systems has eliminated low-value reporting work and replaced it with more rigorous surveillance activities. Real-time data and alerting capabilities now allow the asset team to see changes in reservoir temperature and pressure between build-up tests, and this leads to better surveillance discipline.

Change Management: One Tool of Many

Change Management can be an important tool for a successful Digital Oilfield of the Future technology insertion. Combined with the other critical success factors, Change Management may be the missing link for successful implementation of DOFF technology. The lesson learned is: Take the proven road to success.

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About Endeavor

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